Research Article

Effectiveness of Green Space Therapy on Psychological Well-Being Among First-Year Nursing Students in India: A One-Group Pre-Test–Post-Test Study

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Abstract

Aim/Objective: To assess changes in psychological well-being following a three-week green space therapy program. Background: Nursing students experience sustained academic and clinical demands that may adversely affect psychological well-being. Evidence regarding affordable nature-based interventions among nursing students in India remains limited. Design: A pre-experimental, one-group pre-test–post-test was used for the study Methods: The study was conducted at a nursing college hostel campus in Khairabad, Sitapur, Uttar Pradesh, India. Thirty first-year B.Sc. Nursing and G.N.M. students with below-average or very low baseline well-being were selected through simple random sampling; 29 completed the post-test. The three-week intervention comprised six 45-minute sessions weekly, including guided nature walks, barefoot walking, dance warm-ups, meditation or yoga, nature sounds, and group activities. Well-being was measured using the 14-item WEMWBS before and five days after intervention. Paired t-tests and chi-square tests were used for analysis. Results: Mean WEMWBS scores increased from 39.86 (SD 4.88) to 56.07 (SD 3.29), with a mean difference of 16.21 (95% CI 13.80–18.62), t(28) = 13.78, p less than 0.001, and Cohen's dz = 2.56. Post-test scores indicated average-to-moderate well-being in 79.3% and high well-being in 20.7% of participants. Analyses identified associations between post-test well-being category and father's education (p = 0.035) and residential area (p = 0.019). Conclusion: Well-being scores improved following the program. However, the absence of a control group, selection based on low baseline scores, and small sample limit causal interpretation. Controlled studies with longer follow-up are needed before recommending curriculum-wide implementation.

Keywords: Green Space Therapy, Psychological Well-being, Nursing Students, Nature-Based Interventions, Mental Health, Warwick–Edinburgh Mental Well-being Scale (WEMWBS), Holistic Health, Pre-test–Post-test Study.

1. Introduction

Nursing education is a rigorous academic program, in addition to exposure to clinical settings early in the program, and often high levels of stress are reported by students. The demands of the academic learning and clinical training make psychological distress such as stress, anxiety and depression an important concern among nursing students. The results indicated that psychological well-being of nursing students is very important and factors that cause psychological distress should be investigated. In a cross-sectional study conducted in South India, Das et al. (2021) reported anxiety, depression, and stress among 85.3%, 67.7%, and 46.9% of nursing students, respectively. Similarly, Singh et al. (2013), in a study of 282 undergraduate nursing students in North India, identified considerable perceived stress, with higher mean scores among second-year students. These findings highlight the importance of assessing psychological well-being among nursing students and investigating factors that may contribute to psychological distress.

Students staying in a hostel also get used to a new environment, limited family interaction and a rigid schedule. Well-being extends beyond the absence of disease and is relevant to learning, clinical performance and the ability to provide compassionate care, and includes positive feelings and capacities.

Contact with green space has been linked to better mental health. A report of the World Health Organization Regional Office for Europe (2021) reviewed evidence that green and blue spaces support mental health and well-being, and a scoping review of urban green space concluded that exposure is associated with mental health

benefits (Callaghan et al., 2021). A systematic review of adolescents reported that the accessibility and quality of green space is likely to benefit mental well-being (Zhang et al., 2020), and a recent meta-analysis reported a pooled odds ratio of 0.83 (95% CI 0.78 to 0.88) for mental health outcomes in relation to green space (Baskaran et al., 2025). Most of this evidence is observational. In a cross-sectional analysis in England, green space prevalence was associated with mental well-being (Houlden et al., 2017), and in an Asian urban setting, park use and physical activity in parks were consistently associated with well-being (Petrunoff et al., 2021).

Experimental and quasi-experimental work is smaller but points the same way. Young Polish adults reported higher positive affect and restoration after exposure to green environments in a field experiment (Korcz et al., 2023), and Viennese school pupils showed better well-being and cognitive performance after breaks in green spaces (Wallner et al., 2018). Horticultural therapy in designed urban green spaces improved stress scores in a Serbian sample (Vujcic et al., 2017), a park-based physical activity programme improved psychological well-being in Italian adults, particularly women (Toselli et al., 2022), and community walking groups in urban and green settings produced biopsychosocial benefits that transferred to everyday life (Cooley et al., 2021). Two complementary theories explain why: stress recovery theory proposes that natural settings rapidly reduce physiological stress (Ulrich et al., 1991), and attention restoration theory proposes that they allow directed attention to recover (Kaplan, 1995).

This study used a holistic approach to health, where well-being is seen as being multidimensional, and interconnections between physical, mental and social well-being was recognised (World Health Organization [WHO], 1948). Spiritual well-being was also taken into account as another dimension for planning the intervention. The programme therefore introduced walking and outdoor activities to stimulate physical engagement, mindfulness activities to support mental health, group activities such as the treasure hunt and planting to stimulate social interaction and meditation and silent walking to give an opportunity for reflection and inner awareness. To the best of our knowledge, there had been few studies on structured green space therapy programmes especially for nursing students in India. Thus, this study explored the effect of a three week green space therapy programme on psychological well-being, assessed through the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) amongst a group of first year nursing students living in a nursing home with a low score on the average range of the WEMWBS.

2. Methods

2.1 Design and reporting

We used a one-group pre-test–post-test (pre-experimental) design with no control group. The report follows the TREND statement for non-randomised evaluations (Des Jarlais et al., 2004), and the intervention is described using the TIDieR headings (Hoffmann et al., 2014).

2.2 Setting and participants

The study took place on the hostel campus of B.C.M. College of Nursing, Khairabad, Sitapur, Uttar Pradesh, India, between August to September 2025. The accessible population was first-year B.Sc. Nursing (second semester) and G.N.M. students living in the hostel. Eligible students were willing to participate and scored in the below-average or very low WEMWBS range at screening (14–45). We excluded day scholars, students who took part in the pilot study or the tool trial, students with allergy or hypersensitivity to grass, pollen or insect bites, and students with chronic illness (asthma). We screened 72 students and 55 students were eligible.Participants were drawn from eligible students by simple random sampling using the lottery method.

2.3 Sample size

There were 30 first year nursing students in the study. This psychological well-being was measured through the 14-item Warwick–Edinburgh Mental Well-being Scale (WEMWBS) prior to the green space therapy. One of the participants then left the hostel before the intervention and did not complete the post-test assessment. Thus, there were 29 participants who took both pre-test and post-test and were analysed in pairs. The attrition rate was 3.3% (1/30). To assess the psychological well-being changes after the intervention, paired pre-test and post-test scores of 29 participants who had complete scores were analyzed.

2.4 Intervention

Six days a week, from 05:30 to 06:10 (40 minutes a day) in a special green zone of the hosting campus. Before each Session, there was a nature walk followed by a 10-minute warm-up using dance. This was followed by 10 – 15 minutes of mindfulness meditation, breathing or Hatha yoga. Recorded natural sounds, such as birds, wind and water were played on meditation days. A group activity was used in each session for 10-15 minutes at the

end. The sessions were conducted by the main researcher with the help of a research assistant and the programme was implemented in smaller groups. The intervention activities were chosen from the published literature on nature based practices and recommended by research guides. Informal attendance was taken. Six-day per week schedule continued for the three weeks of the intervention. Further details of the session structure and activities are presented in Table 1.

Table 1. Daily schedule of the green space therapy programme (40 minutes, 05:30–06:10).

Day	Opening (15 min)	Core practice (10–15 min)	Closing group activity
1	Guided nature walk with barefoot silent walk (5 min); dance warm-up (10 min)	Meditation with nature sounds (10 min)	Planting (15 min)
2	As day 1	Hatha yoga (10 min)	Treasure hunt (15 min)
3	As day 1	Mindfulness meditation with nature sounds (15 min)	Group sharing (10 min)
4	As day 1	Hatha yoga (10 min)	Nature bracelet making (15 min)
5	As day 1	Breathing exercises with nature sounds (10 min)	Nature journaling (15 min)
6	As day 1	Hatha yoga with meditation (10 min)	Treasure hunt (15 min)

Source: study intervention schedule. Each activity was matched to a component of the holistic health model: physical (walks, dance, yoga), mental (mindfulness), social (treasure hunt, planting, group sharing) and spiritual (meditation, silent walk).

2.5 Instruments

A self-structured demographic data sheet was used to collect information on participants' age, parents' education and occupation, residential area, number of siblings, family type, annual family income, nursing programme, year of study, and history of illness. Sex/gender was not recorded in the study dataset and was therefore not included in the demographic analysis.

Psychological well-being was measured with the 14-item Warwick-Edinburgh Mental Well-being Scale (WEMWBS), which asks respondents to rate positively worded statements on a five-point scale for the preceding two weeks; total scores range from 14 to 70, and higher scores indicate greater well-being (Tennant et al., 2007). Cronbach's alpha values of 0.89 in a general population sample and 0.91 in a student sample were reported when the scale was validated (Tennant et al., 2007). For description we grouped scores into four categories: very low (14–32), below average (33–45), average to moderate (46–59) and high (60–70). These bands were defined by the investigators and are not published clinical cut-offs. Permission to use the 14-item Warwick–Edinburgh Mental Well-being Scale (WEMWBS) was obtained through the official registration process for a non-commercial licence. The scale was used in accordance with the applicable licence terms and copyright requirements (Tennant et al., 2007).

2.6 Pilot study and data collection

The tool was tried on a small group of students who were not in the main study; completion took about 15 minutes and wording was simplified accordingly. A pilot study ran from 7 to 13 July 2025 on the same campus with five students drawn from an initial group of 22 with the lowest well-being scores. They received a six-day version of the programme and were re-tested two days later; their scores were higher, and they were excluded from the main study. In the main study, the pre-test and demographic sheet were completed on day 1. The three-week programme followed, and the post-test was completed five days after the final session to allow a short interval without sessions.

2.7 Ethical considerations

Permission was obtained from the Principal of B.C.M. College of Nursing, and ethical clearance was sought from the Institutional Ethics Committee BCM College of Nursing IEC/1/98/2025. Participation was voluntary. Each participant signed a written consent form after being told the purpose and procedure of the study. Data were kept confidential. The study followed the principles of the Declaration of Helsinki.

2.8 Data analysis

Data were analysed using jamovi (version 2.7; The jamovi project, 2025) and R (version 4.5; R Core Team, 2025). Categorical variables were summarised using frequencies and percentages, while WEMWBS total scores were described using means and standard deviations. Pre-test and post-test WEMWBS scores for the 29 participants who completed both assessments were compared using a paired-samples t-test. The standardised effect size was expressed as Cohen's (d_z), calculated by dividing the mean paired difference by the standard deviation of the paired differences (Lakens, 2013). The 95% confidence interval for the mean paired difference was calculated using the standard error of the differences and the t-distribution with 28 degrees of freedom. Associations between demographic variables and post-test well-being categories were explored using chi-square tests. These analyses were interpreted cautiously because some contingency-table cells had small expected frequencies. All statistical tests were two-sided, and the significance level was set at ($p < 0.05$). The statistical analysis was reviewed by a statistician.

3. Results

3.1 Participants

Thirty students were enrolled in the study, comprising 15 B.Sc. Nursing students and 15 G.N.M. students, all in their first year (Table 2). Participants were aged 17–19 years (46.7%) or 20–22 years (53.3%). More than half of the participants were from urban areas (56.7%) and nuclear families (56.7%). Most mothers were homemakers (66.7%), and 60.0% of participants reported an annual family income of INR 60,000–100,000. Twenty-five participants (83.3%) reported a history of mild non-chronic illness, such as fever or infection. Students with chronic illnesses were excluded from the study. One participant subsequently left the hostel, did not participate in the intervention and did not complete the post-test assessment. Therefore, paired pre-test and post-test analyses were conducted for the 29 participants with complete data (degrees of freedom = 28 for the paired-samples t-test).

Table 2. Baseline characteristics of enrolled participants (n = 30).

Characteristic	Category	n (%)
Age (years)	17–19	14 (46.7)
	20–22	16 (53.3)
Programme	B.Sc. Nursing	15 (50.0)
	G.N.M. Nursing	15 (50.0)
Year of study	First year	30 (100)
Residential area	Urban	17 (56.7)
	Rural	13 (43.3)
Type of family	Nuclear	17 (56.7)
	Joint	13 (43.3)
Number of siblings	1	5 (16.7)
	2	13 (43.3)
	3	7 (23.3)
	More than 3	5 (16.7)
Mother's education	Primary	7 (23.3)
	Secondary	8 (26.7)
	Graduate	8 (26.7)
	Postgraduate	7 (23.3)
Mother's occupation	Housewife	20 (66.7)
	Private worker	8 (26.7)
	Other	2 (6.7)
Father's education	Primary	3 (10.0)
	Secondary	7 (23.3)
	Graduate	12 (40.0)
	Postgraduate	8 (26.7)
Father's occupation	Private worker	10 (33.3)
	Businessman	6 (20.0)
	Farmer	6 (20.0)

	Other	8 (26.7)
Annual family income (INR)	60,000–100,000	18 (60.0)
	100,001–150,000	5 (16.7)
	150,001–200,000	3 (10.0)
	More than 200,000	4 (13.3)
History of illness	Yes	25 (83.3)
	No	5 (16.7)

3.2 Change in psychological well-being

The mean WEMWBS score increased from 39.86 (SD 4.88) before the programme to 56.07 (SD 3.29) after it (Table 3). The mean within-person difference was 16.21 points (SD of differences 6.33; 95% CI 13.80 to 18.62), $t(28) = 13.78$, $p < 0.001$, with a very large standardised effect ($d_z = 2.56$). All 29 participants scored below 46 at pre-test: 25 (86.2%) were in the below-average and 4 (13.8%) in the very low category. At post-test 23 (79.3%) were in the average-to-moderate and 6 (20.7%) in the high category, and none remained in the below-average or very low categories (Fig. 1).

Table 3. Psychological well-being (WEMWBS) before and after the programme (n = 29).

Measure	Pre-test	Post-test	Mean difference (95% CI)	t (df = 28)	p; d_z
WEMWBS total score, mean (SD)	39.86 (4.88)	56.07 (3.29)	16.21 (13.80 to 18.62)	13.78	<0.001; 2.56
Very low (14–32), n (%)	4 (13.8)	0			
Below average (33–45), n (%)	25 (86.2)	0			
Average to moderate (46–59), n (%)	0	23 (79.3)			
High (60–70), n (%)	0	6 (20.7)			

SD, standard deviation; CI, confidence interval; d_z, mean difference divided by SD of the differences. The confidence interval was calculated from the reported summary statistics.

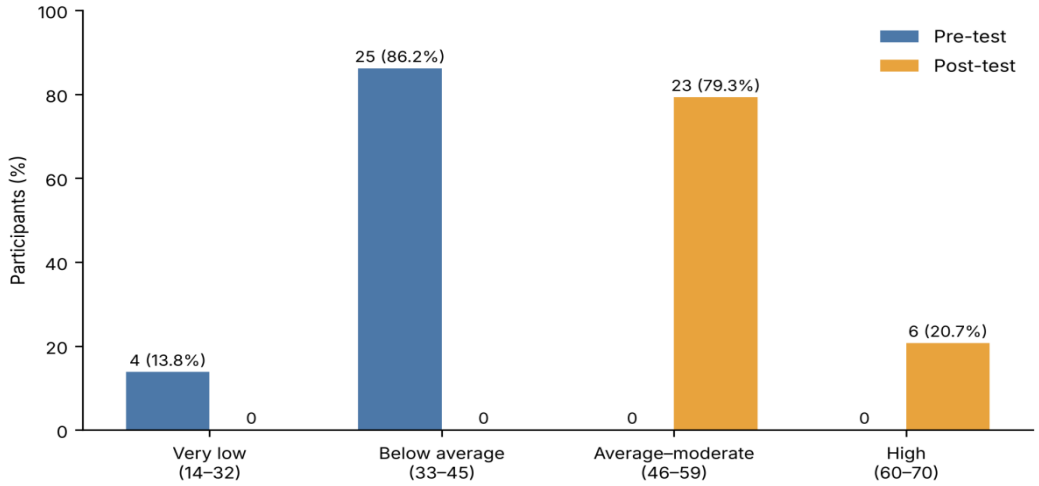


Fig. 1. Distribution of participants across WEMWBS well-being categories before and after the programme (n = 29). Counts and percentages are shown above each bar.

3.3 Association with demographic variables

Associations between demographic characteristics and post-test well-being category were examined using chi-square tests (Table 4). Statistically significant associations were observed for father's education ($\chi^2 = 8.58$, df = 3, $p = 0.035$) and residential area ($\chi^2 = 5.49$, df = 1, $p = 0.019$). No statistically significant associations were observed for the other demographic variables examined. However, these findings should be interpreted cautiously because of the small sample size (n = 29), the limited number of participants in the high well-being category (n = 6), and the potential for small expected cell counts. Furthermore, because multiple demographic

comparisons were conducted, the significant findings are considered exploratory and require confirmation in a larger study.

Table 4. Association between demographic variables and post-test well-being category (n = 29).

Variable	χ^2	df	p-value
Age	0.082	1	0.775
Mother's education	2.59	3	0.459
Mother's occupation	1.38	2	0.503
Father's education	8.58	3	0.035*
Father's occupation	1.98	3	0.576
Residential area	5.49	1	0.019*
Number of siblings	6.36	3	0.095
Type of family	0.202	1	0.653
Annual family income	2.39	3	0.496
Programme/batch	0.676	1	0.411
History of illness	1.21	1	0.271

4. Discussion

Hostel-resident first-year nursing students who scored low on the WEMWBS scored on average 16 points higher after a three-week green space programme, and none remained in the below-average or very low categories. The direction agrees with experimental and quasi-experimental studies of green environments, which reported better affect, restoration, stress scores or well-being after exposure or participation (Korcz et al., 2023; Toselli et al., 2022; Vujcic et al., 2017; Wallner et al., 2018), and with a meta-analytic estimate of benefit for mental health (Baskaran et al., 2025).

The size of the change, however, should be interpreted with restraint. A standardised effect of 2.56 is far larger than is usual in nature-based studies, and several features of the design could inflate it. Participants were selected because their baseline scores were low, so some improvement would be expected through regression to the mean even without an intervention. There was no comparison group to absorb the effects of time, the academic calendar, expectation and attention from the research team, and the post-test followed only five days after the last session, so persistence is unknown. The programme was also multi-component (walking, dance, yoga, meditation, nature sounds, group tasks and an early-morning routine), and the study cannot show which element, or whether contact with green space itself, produced the change. Both stress recovery and attention restoration (Kaplan, 1995; Ulrich et al., 1991) are plausible mechanisms, but they were not measured here.

The two associations with demographic variables, father's education and residential area, arose in eleven unadjusted tests on 29 participants with sparse cells. We regard them as hypothesis-generating. They may reflect differences in prior familiarity with green space or in baseline well-being, but the data cannot show this.

4.1 Strengths and limitations

Strengths include a validated, widely used outcome measure, random selection from eligible students, a stated intervention schedule that can be replicated, a pilot study before the main study, and consent and ethics procedures. The main limitations are the single-group design without a control, selection on low baseline scores, the small sample from one institution, one participant without post-test data, a very short follow-up, participation limited to first-year hostel residents, and investigator-defined WEMWBS bands. The sample size calculation used a formula for two independent groups and a standard deviation whose source needs confirmation. Only self-reported well-being was assessed, and the study did not measure stress, cognition or attendance, so no conclusion about these can be drawn.

5. Implications for nursing education and research

The programme was only required an existing green space, early morning time and low-level activities, making it easily replicable in nursing colleges, where students are housed on campus. We recommend that it is used as one part of student support as more evidence is gathered rather than an alternative to counselling or mental health services. There is a need for future studies to employ randomised controlled design with more and diverse students, capture attendance, reach out to larger follow-up periods (beyond one week) and add an assessment of stressors and cognitive functioning, while taking students who are not selected for low well-being. Qualitative

research might help to pinpoint students' preferences for activities.

6. Conclusion

The PSW scores of first year nursing students residing in a hostel were significantly improved after a three-week green space therapy. The overall improvement is encouraging, but the design of the programme is uncontrolled and selection based on low baseline scores and the sample size was small, so the results of the programme cannot be conclusively attributed. The next step after controlled studies are clinical trials.

Authorship contribution statement

Jaseentha C.O.: Conceptualization, Methodology, Supervision, Project administration, Writing – review & editing, Writing – original draft. **Gajendra Parashar**: Methodology, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declare that there is no conflict of interest in relation to this work.

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Ethics approval

Institutional Ethics Committee: BCM College of Nursing IEC/1/98/2025

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this manuscript, the authors used ChatGPT (OpenAI) to assist with language clarification, grammatical editing, and improvement of manuscript readability. The authors reviewed and revised the AI-assisted text and take full responsibility for the accuracy, integrity, and final content of the manuscript.

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References

1. Baskaran, S., et al., 2025. Effectiveness of green space in improving mental health: a review. Int. J. Built Environ. Sustain. 12 (1), 175–186. https://doi.org/10.11113/ijbes.v12.n1.1369
2. Callaghan, A., McCombe, G., Harrold, A., McMeel, C., Mills, G., Moore-Cherry, N., Cullen, W., 2021. The impact of green spaces on mental health in urban settings: a scoping review. J. Ment. Health 30 (2), 179–193. https://doi.org/10.1080/09638237.2020.1755027
3. Cooley, S.J., Robertson, N., Jones, C.R., Scordellis, J.-A., 2021. 'Walk to Wellbeing' in community mental health: urban and green space walks provide transferable biopsychosocial benefits. Ecopsychology 13 (2), 84–95. https://doi.org/10.1089/eco.2020.0050
4. Des Jarlais, D.C., Lyles, C., Crepaz, N., TREND Group, 2004. Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: the TREND statement. Am. J. Public Health 94 (3), 361–366.
5. Hoffmann, T.C., Glasziou, P.P., Boutron, I., et al., 2014. Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide. BMJ 348, g1687.
6. Houlden, V., Weich, S., Jarvis, S., 2017. A cross-sectional analysis of green space prevalence and mental wellbeing in England. BMC Public Health 17, 460. https://doi.org/10.1186/s12889-017-4401-x
7. Kaplan, S., 1995. The restorative benefits of nature: toward an integrative framework. J. Environ. Psychol. 15 (3), 169–182.
8. Korcz, N., et al., 2023. The psychological effects and benefits of using green spaces in the city: a field experiment with young Polish adults. Forests 14 (3), 497. https://doi.org/10.3390/f14030497
9. Lakens, D., 2013. Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. Front. Psychol. 4, 863.
10. Petrunoff, N.A., Yi, N.X., Dickens, B., Sia, A., Koo, J., Cook, A.R., Lin, W.H., Ying, L., Hsing, A.W., van Dam, R.M., Müller-Riemenschneider, F., 2021. Associations of park access, park use and physical activity in parks with wellbeing in an Asian urban environment: a cross-sectional study. Int. J. Behav. Nutr. Phys. Act. 18, 87. https://doi.org/10.1186/s12966-021-01147-2

11. R Core Team, 2025. R: A Language and Environment for Statistical Computing, version 4.5. R Foundation for Statistical Computing, Vienna. https://cran.r-project.org
12. Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., Stewart-Brown, S., 2007. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. Health Qual. Life Outcomes 5, 63.
13. The jamovi project, 2025. jamovi, version 2.7 [computer software]. https://www.jamovi.org
14. Toselli, S., et al., 2022. Effect of a park-based physical activity intervention on psychological wellbeing at the time of COVID-19. Int. J. Environ. Res. Public Health 19 (10), 6028. https://doi.org/10.3390/ijerph19106028
15. Ulrich, R.S., Simons, R.F., Losito, B.D., Fiorito, E., Miles, M.A., Zelson, M., 1991. Stress recovery during exposure to natural and urban environments. J. Environ. Psychol. 11 (3), 201–230.
16. Vujcic, M., Tomicevic-Dubljevic, J., Grbic, M., Lecic-Tosevski, D., Vukovic, O., Toskovic, O., 2017. Nature based solution for improving mental health and well-being in urban areas. Environ. Res. 158, 385–392. https://doi.org/10.1016/j.envres.2017.06.030
17. Wallner, P., Kundi, M., Arnberger, A., et al., 2018. Reloading pupils' batteries: impact of green spaces on cognition and wellbeing. Int. J. Environ. Res. Public Health 15 (6), 1205. https://doi.org/10.3390/ijerph15061205
18. World Health Organization Regional Office for Europe, 2021. Green and Blue Spaces and Mental Health: New Evidence and Perspectives for Action. WHO Regional Office for Europe, Copenhagen.
19. Zhang, Y., Mavoa, S., Zhao, J., Raphael, D., Smith, M., 2020. The association between green space and adolescents' mental well-being: a systematic review. Int. J. Environ. Res. Public Health 17 (18), 6640. https://doi.org/10.3390/ijerph17186640
20. Das BN, Mohandas A, Syed S. Study of stress, anxiety, depression and coping strategies among nursing students in a tertiary care teaching hospital, South India. Int J Community Med Public Health. 2021;8(7):3400–3405. doi: 10.18203/2394-6040.ijcmph20212594.
21. Singh A, Chopra M, Adiba S, Mithra P, Bhardwaj A, Arya R, et al. A descriptive study of perceived stress among the North Indian nursing undergraduate students. Iran J Nurs Midwifery Res. 2013;18(4):340–342.